WHAT IS CLAIMED IS:

1. A method for producing a monosaccharide-rich syrup from starch-containing produce, the method comprising treating a starch-containing produce slurry with a first starch hydrolyzing enzyme that hydrolyzes starch to oligosaccharide and a second starch hydrolyzing enzyme that hydrolyzes starch or oligosaccharide to glucose.

2. The method of claim 1, wherein the monosaccharide-rich syrup is a syrup rich in glucose or rich in a monosaccharide converted from glucose.

3. The method of claim 2, further comprising treating the starch-containing produce slurry with a converting enzyme that converts glucose to fructose or a microorganism that converts glucose to mannitol, erythritol, sorbitol, xylitol, sorbose, or xylose.

4. The method of claim 3, wherein the starch-containing slurry is treated with a converting enzyme that converts glucose to fructose to obtain a fructose-rich syrup.

5. The method of claim 4, wherein the first starch hydrolyzing enzyme is α-amylase and the second starch hydrolyzing enzyme is glucoamylase.

6. The method of claim 5, wherein the converting enzyme is glucose isomerase.

7. The method of claim 6, wherein the starch-containing produce slurry is first treated with the α-amylase and insoluble materials are then removed therefrom to obtain a starch hydrolysate-containing solution, the solution is subsequently treated with the glucoamylase to obtain a glucose-rich syrup, and finally the glucose-rich syrup is treated with the glucose isomerase to obtain the fructose-rich syrup.

8. The method of claim 7, wherein the produce is rice, tapioca, grain sorghum, potato, sweet potato, wheat, barley, corn, or legumes.

9. The method of claim 2, wherein the monosaccharide-rich syrup is a glucose-rich syrup.

10. The method of claim 9, wherein the first starch hydrolyzing enzyme is α-amylase and the second starch hydrolyzing enzyme is glucoamylase.

11. The method of claim 10, wherein the starch-containing produce slurry is first treated with the α-amylase and insoluble materials are then removed therefrom to obtain a starch hydrolysate-containing solution, and the solution is then treated with the glucoamylase to obtain the glucose-rich syrup.

12. The method of claim 11, wherein the produce is rice, tapioca, grain sorghum, potato, sweet potato, wheat, barley, corn, or legumes.

13. The method of claim 2, wherein the produce is rice, tapioca, grain sorghum, potato, sweet potato, wheat, barley, corn, or legumes.

14. A method for producing a fermentation product from starch-containing produce, the method comprising treating a starch-containing produce slurry with a first starch hydrolyzing enzyme that hydrolyzes starch to oligosaccharide, a second starch hydrolyzing enzyme that hydrolyzes starch or oligosaccharide to glucose, and a microorganism that converts glucose to a fermentation product.

15. The method of claim 14, wherein the first starch hydrolyzing enzyme is α-amylase and the second starch hydrolyzing enzyme is glucoamylase.

16. The method of claim 15, wherein the fermentation product is wine, vinegar, lactic acid, citric acid, or amino acids.

17. The method of claim 16, wherein the starch-containing produce slurry is first treated with the α-amylase and insoluble materials are then removed therefrom to obtain a starch hydrolysate-containing solution, the solution is subsequently treated with the glucoamylase to obtain a glucose-rich syrup, and finally the glucose-rich syrup is treated with the microorganism to obtain the fermentation product.

18. The method of claim 17, wherein the produce is rice, tapioca, grain sorghum, potato, sweet potato, wheat, barley, corn, or legumes.

19. The method of claim 14, wherein the fermentation product is wine, vinegar, lactic acid, citric acid, or amino acids.

20. The method of claim 14, wherein the produce is rice, tapioca, grain sorghum, potato, sweet potato, wheat, barley, corn, or legumes.

21. A method for producing a trehalose-rich syrup from starch-containing produce, the method comprising treating a starch-containing produce slurry with a first starch hydrolyzing enzyme that hydrolyzes starch to oligosaccharide, a second starch hydrolyzing enzyme that hydrolyzes starch or oligosaccharide to maltose, and a converting enzyme that converts maltose to trehalose.

22. The method of claim 21, wherein the first starch hydrolyzing enzyme is α-amylase and the second starch hydrolyzing enzyme is β-amylase.

23. The method of claim 22, wherein the converting enzyme is trehalose synthase.

24. The method of claim 23, wherein the starch-containing produce slurry is first treated with the α-amylase and insoluble materials are then removed therefrom to obtain a starch hydrolysate-containing solution, the solution is subsequently treated with the β-amylase to obtain a maltose-rich syrup, and finally the maltose-rich syrup is treated with the trehalose synthase to obtain the trehalose-rich syrup.

25. The method of claim 24, wherein the produce is rice, tapioca, grain sorghum, potato, sweet potato, wheat, barley, corn, or legumes.

26. The method of claim 21, wherein the converting enzyme is trehalose synthase.

27. The method of claim 21, wherein the produce is rice, tapioca, grain sorghum, potato, sweet potato, wheat, barley, corn, or legumes.

28. The method of claim 21, wherein the second starch hydrolyzing enzyme and the converting enzyme are the same enzyme.

29. A method for producing an isomaltose-rich syrup from starch-containing produce, the method comprising treating a starch-containing produce slurry with a first starch hydrolyzing enzyme that hydrolyzes starch to oligosaccharide, a second starch hydrolyzing enzyme that hydrolyzes starch or oligosaccharide to maltose, and a converting enzyme that converts maltose to isomaltose.

30. A method for culturing a microorganism, comprising growing the microorganism in a starch hydrolysate-containing solution or a glucose-rich syrup prepared from starch-containing produce.